

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has added new claims 14-24. Thus, claims 1-24 are now pending in the application. In response to the Office Action (Paper No. 8), Applicant respectfully submits that the pending claims define patentable subject matter.

As a preliminary matter, Applicant thanks the Examiner for indicating that claims 8-10 would be allowable if rewritten independent form. However, Applicant respectfully requests the Examiner to hold in abeyance the rewriting of these claims until the Examiner has had the opportunity to reconsider the rejected parent claims in light of the arguments presented below in support of the Applicant's traverse of the rejection.

Claims 1, 7 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gritton (USP 5,940,397) in view of Petersen et al. (USP 5,802,051; hereafter "Petersen"). Claims 2-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gritton in view of Petersen as applied to claim 1, 7, and 11 above, in view of Depelteau et al. (USP ,6404,767; hereafter "Depelteau"). Claims 12 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gritton in view of Petersen as applied to claim 1, 7, and 11 above, and further in view of Harth et al. (USP 6,331,981; hereafter "Harth"). Applicant respectfully traverses the § 103 rejections.

Independent claims 1 and 11 recite "scheduling ATM cell transmission times in a way as to keep ATM cell spacing as constant as possible", and "multiplexing a plurality of low bit rate connections into a same ATM connection having the thus scheduled ATM cell transmission

times.” Applicant respectfully submits that the applied references do not teach these features of the claimed invention.

The Examiner maintains that Gritton discloses all of the features of independent claims 1 and 11 with the exception that Gritton “fails to teach explicitly of generating ATM cells for purpose[s] of low bit rate applications”, which the Examiner asserts is disclosed by Peterson. Further, with regards to claims 1 and 11, the Examiner asserts that Gritton teaches “multiplexing a plurality of connections into a same ATM connection having the thus scheduled ATM cell transmission times ... as claim[ed]”. Applicant respectfully disagrees with the Examiner’s characterizations of Gritton and Peterson.

Referring to Figure 3 of Gritton, the three flows VC1, VC2, VC3 of data cells 52 at the input of scheduler 50 are multiplexed into a single flow of transmitted data cells 54 at the output of scheduler 50. However, the usual meaning of the term “ATM connection” is such that it is each of the different flows VC1, VC2, VC3 (i.e., each virtual circuit VC) corresponds to an ATM connection, not the result of the multiplexing of different virtual circuits VCs. Thus, while Applicant agrees with the Examiner that Gritton fails to teach generating ATM cells for purpose of low bit rate applications, Applicant disagrees with the Examiner assertion that Gritton teaches scheduling ATM cell transmission times in a way as to keep ATM cell spacing as constant as possible, as claimed.

Petersen is concerned with the multiplexing of a plurality of low bit rate connections into a same ATM connection. More particularly, Petersen is concerned with such a multiplexing, taking into account the respective priorities of the different low bit rate connections to be

multiplexed into a same ATM connection. However, contrary to the present invention, Petersen is not concerned with the scheduling of transmission times of the ATM cells.

Although Applicant agrees with the Examiner that it is necessary to include a scheduling of ATM cell transmission times to make the system operative, contrary to the present invention, it is not at all the purpose of Petersen to propose a scheduling method that avoids the drawbacks of the prior art, as recognized by the present invention and discussed in particular at pages 1 and 2 of the present application.

The differences between Petersen (the primary reference in each of the rejections) and the present invention can be understood by referring, for example, to Figure 9 of Petersen. Petersen's object is the preparation of the content of ATM cells noted 940 in Figure 9, in the circumstances by multiplexing of mini-cells, taking into account the respective priorities (as illustrated for example) by the blocks located on the left-hand side of ATM cells 940 in figure 9).

As for the scheduling of transmission times of such ATM cells, as indicated in the present application (in particular pages 1 and 2), a currently used solution is the following. If an ATM cell is complete with CPS packets before the expiration of a timer delay, it is sent out immediately; otherwise it is sent out (completed with padding) as soon as this timer delay expires. In other words, this solution ensures that CPS packets wait at most the duration of the timer before being scheduled for transmission. Although this solution reduces the waiting time of CPS packets, it still has the drawback of introducing some delay variations.

The present invention is based on a different approach, enabling in particular to avoid such a drawback. That is, contrary to the above-recalled prior art solution based on the use of a

timer, the present invention schedules ATM cell transmission times in a way as to keep ATM cell spacing as constant as possible. In particular, the ATM cell spacing can be kept as close as possible to a cell rate negotiated for the corresponding ATM connection. Cell rate is a currently known parameter of a traffic agreement negotiated for data transfer in ATM networks. Control of compliance with the negotiated cell rate is usually performed in transit nodes of an ATM network, by compensating for cell delay variations occurring during transit in this network. On the contrary, the present invention is carried out in a source node. Indeed, the present invention is concerned with a mode of generation of ATM cells which may, in itself, introduce cell delay variations. Ensuring compliance with the negotiated cell rate, as from the source, therefore constitutes a simple and efficient way of avoiding such delay variations, while at the same time simplifying traffic management in the network.

In view of the above, Applicant respectfully submits that the combination of Gritton Petersen does not disclose or suggest such a method or apparatus for scheduling of transmission times of such ATM cells, as claimed. Accordingly, Applicant respectfully submits that independent claims 1 and 11, as well as dependent claims 2-7, 12 and 13, should be allowable because the applied references do not teach or suggest all of the features of the claims.

By this Amendment, Applicant has added new claims 14-24 to further define the claimed invention. Applicant respectfully submits that independent claims 14, 22, 23 and 24 should be allowable for the same reasons set forth above with regards to claims 1 and 11. In particular, Applicant respectfully submits that it is quite clear that the applied references do not teach or suggest "scheduling ATM cell transmission times in a way that as long as there is data available

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/429,028

from at least one of said low bit rate connections, ATM cell transmission times are spaced according to a cell rate negotiated for the corresponding ATM connection", as claimed.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Christopher R. Lipp
Registration No. 41,157

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

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AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/429,028

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 14-24 are added as new claims.